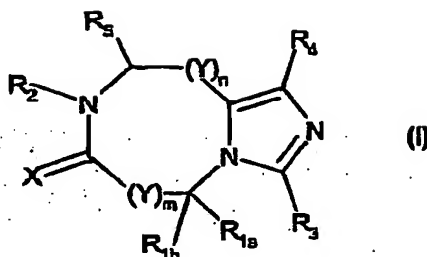


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What is claimed is:

1. A compound of formula I



wherein

X is oxygen or H₂;

Y is -CRR'- in which

R and R' are independently hydrogen, optionally substituted alkyl, aralkyl or heteroaralkyl;

R_{1a} is hydrogen, optionally substituted alkyl, cycloalkyl, alkenyl, alkynyl, aryl, aralkyl, heterocyclyl or heteroaralkyl provided that R_{1a} is not 9H-carbazol-2-yl when R₂ is methyl, m is zero or an integer of 1, n is zero, X is H₂, and R_{1b}, R₃, R₄ and R₅ are hydrogen;

R_{1b} is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl, aryl or heteroaryl;

R₂ is R₆-(CHR₇)_p- in which

R₆ is optionally substituted alkyl, cycloalkyl, aryl or heterocyclyl;

R₇ is hydrogen, optionally substituted alkyl, aryl, heteroaryl or aralkyl;

p is zero or an integer from 1 to 4;

R₃ and R₄ are independently hydrogen, halogen, optionally substituted alkyl, aryl or heteroaryl; or

R₄-C may be replaced by nitrogen;

R₅ is hydrogen, optionally substituted alkyl, aryl, heteroaryl, aralkyl or heteroaralkyl;

m and n are independently zero or an integer of 1 provided that the sum of m and n is not 2;

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with proviso that when $R_3, R_4, R_6, R, R', R_{1b}$ and R_{1a} are hydrogen, X is H_2 , $m=0$ and $n=1$, then R_2 is not $-CH_2-CH=CMe_2$ or is not $-CH_2-Ph$; or when $m=1$ and $n=0$, R_{1a}, R_{1b}, R, R' , and R_5 are hydrogen, X is H_2 , R_2 is CH_3 , then R_3 is not hydrogen when R_4 is hydrogen or R_3 is not Me when R_4 is i-Pr, or R_3 is not n-Pr when R_4 is Et or R_3 is not i-Pr when R_4 is Et or R_3 is not i-Pr when R_4 is n-Pr, or R_3 is not i-Pr when R_4 is i-Pr; or when $m=0$ and $n=0$ or $m=1$ and $n=0$, R_6, R_4, R_3, R and R' are hydrogen, R_2 is CH_3 , X is H_2 , R_{1a} is hydrogen, R_{1b} is not carbazoyl; or when $m=0$ and $n=0$, R_6, R_4, R_3, R and R' are hydrogen, R_2 is CH_3 , X is H_2 , R_{1a} is hydrogen, R_{1b} is not fluorenyl; or when $n=0$ and $m=1$, $R_{1b}, R_{1a}, R, R', R_3$ and R_4 are hydrogen, R_2 is CH_3 , X is H_2 , R_6 is not carbazoyl;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

2. A compound according to claim 1 wherein

Y is $-CRR'-$ in which R and R' are hydrogen;

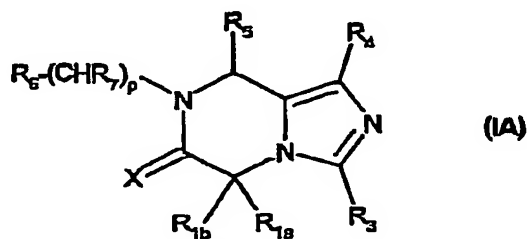
or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

3. A compound according to claim 2 wherein

m and n are zero;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

4. A compound according to claim 3 of formula IA



wherein

X is oxygen or H_2 ;

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R_{1a} is lower alkyl, aryl or heteroaryl provided that R_{1a} is not 9H-carbazol-2-yl when R_8 is methyl, p is zero, X is H_2 , and R_{1b} , R_3 , R_4 and R_5 are hydrogen;

R_{1b} is hydrogen, lower alkyl, aralkyl or heteroaralkyl;

R_8 is cycloalkyl, aryl or heteroaryl;

R_7 is hydrogen or lower alkyl;

p is zero or an integer of 1 or 2;

R_3 , R_4 and R_5 are hydrogen;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

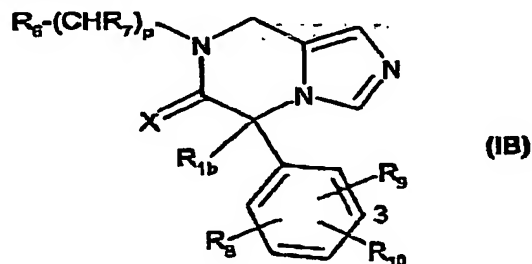
5. A compound according to claim 4 wherein

R_{1a} is monocyclic aryl;

R_{1b} is hydrogen, lower alkyl or aralkyl;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

6. A compound according to claim 5 of formula IB



wherein

X is oxygen or H_2 ;

R_{1b} is hydrogen, lower alkyl or aralkyl;

R_8 is cycloalkyl, aryl or heteroaryl;

R_7 is hydrogen or lower alkyl;

p is zero or an integer of 1 or 2;

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R_8 , R_9 and R_{10} are independently hydrogen, hydroxy, halogen, cyano, nitro, trifluoromethyl, optionally substituted alkyl, cycloalkyl, optionally substituted amino, alkoxy, alkylthio, carboxy, sulfonyl, carbamoyl, aryl, aryloxy, arylthio or heterocyclyl;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

7. A compound according to claim 6 of wherein

X is oxygen or H_2 ;

R_{1b} is hydrogen, lower alkyl or aralkyl;

R_6 is cycloalkyl, aryl or heteroaryl;

R_7 is hydrogen or lower alkyl;

p is an integer of 1;

R_8 is hydrogen;

R_9 is hydrogen, halogen, cyano or trifluoromethyl;

R_{10} is halogen, cyano or trifluoromethyl;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

8. A compound according to claim 7 wherein

X is oxygen;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

9. A compound according to claim 7 wherein

R_8 is C_{3-6} cycloalkyl, monocyclic aryl or monocyclic heteroaryl;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

10. A compound according to claim 7 wherein

R_{10} is located at the 3-position;

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or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

11. A compound according to claim 1 which is selected from:

- 4-(7-Cyclopropylmethyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-(7-Methyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-(7-Benzyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-(7-Allyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-(6-Oxo-7-propyl-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-(7-Isopropyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-[7-[2-(4-Fluoro-phenyl)-ethyl]-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 4-[7-(3-Morpholin-4-yl-propyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 7-(4-Methoxy-benzyl)-5-(4-thiophen-3-yl-phenyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
- 4-[7-(4-Methyl-benzyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 4-[7-(4-Chloro-benzyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 4-[6-Oxo-7-(4-trifluoromethyl-benzyl)-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 4-[6-Oxo-7-(3-methyl-benzyl)-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 4-[6-Oxo-7-(4-fluoro-benzyl)-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 4-[6-Oxo-7-(3-trifluoromethyl-benzyl)-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 4-[6-Oxo-7-(3,4-dichloro-benzyl)-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
- 4-(7-Cyclopropyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-(7-Cyclohexyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-(7-Cyclopentyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
- 4-[7-(2-Methoxyethyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

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4-[7-(3-Methoxypropyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;
4-(6-Oxo-7-pyridin-4-ylmethyl-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;
7-Benzyl-5-phenyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
7-Methyl-5-phenyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(4-Bromo-phenyl)-7-methyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(4-Bromo-phenyl)-7-(4-methoxy-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(4-Bromo-phenyl)-7-cyclopropylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
7-Benzyl-5-(4-bromo-phenyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(4-Bromo-phenyl)-7-(4-chloro-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(4-Bromo-phenyl)-7-(4-trifluoromethyl-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(4-Bromo-phenyl)-7-(4-methoxy-phenyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(4-Bromo-phenyl)-7-(4-fluoro-phenethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(4-Bromo-phenyl)-7-(4-fluoro-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-methyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-cyclohexyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(4-methoxy-phenyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-cyclopropylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
7-Benzyl-5-(3-bromo-phenyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(4-methoxy-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(4-fluoro-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(4-chloro-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(4-methyl-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(4-trifluoromethyl-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(3-trifluoromethyl-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(3-fluoro-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
5-(3-Bromo-phenyl)-7-(3-methyl-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

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5-(3-Bromo-phenyl)-7-(phenethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-(4-methoxy-phenethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-(4-chloro-phenethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-(3-chloro-phenethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-(4-methyl-phenethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-(4-fluoro-phenethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-thiophen-2-ylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-furan-2-ylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-thiophen-3-ylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-furan-3-ylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-pyridin-3-ylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-pyridin-2-ylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-pyridin-4-ylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 5-(3-Bromo-phenyl)-7-cyclohexylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 4-[5-(3-Bromo-phenyl)-6-oxo-5,6-dihydro-8H-imidazo[1,5-a]pyrazin-7-ylmethyl]-piperidine-1-carboxylic acid t-butyl ester;
 5-(3-Bromo-phenyl)-7-piperidin-4-ylmethyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 (R)-5-(3-Bromo-phenyl)-7-((R)-1-phenyl-ethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 (S)-5-(3-Bromo-phenyl)-7-((R)-1-phenyl-ethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 (R)-5-(3-Bromo-phenyl)-7-((S)-1-phenyl-ethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 (S)-5-(3-Bromo-phenyl)-7-((S)-1-phenyl-ethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 (R)-5-(4-Bromo-phenyl)-7-((R)-1-phenyl-ethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 (S)-5-(4-Bromo-phenyl)-7-((R)-1-phenyl-ethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 (R)-5-(4-Bromo-phenyl)-7-((S)-1-phenyl-ethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 (S)-5-(4-Bromo-phenyl)-7-((S)-1-phenyl-ethyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;
 4-[(R)-6-Oxo-7-((S)-1-phenyl-ethyl)-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

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4-[(S)-6-Oxo-7-((S)-1-phenyl-ethyl)-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

7-Benzyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

7-(4-Methyl-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

7-(4-Fluoro-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

3-(7-Benzyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;

3-[7-(4-Methyl-benzyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

3-[7-(4-Fluoro-benzyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

3-[7-(4-Chloro-benzyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

3-[7-(4-Methoxy-benzyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

3-[7-(4-Fluoro-phenethyl)-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

3-(7-Phenethyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;

3-(7-Cyclopropylmethyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;

5-(4'-Chloro-biphenyl-4-yl)-7-(4-methoxy-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

7-(4-Methoxy-benzyl)-5-(4-thiophen-3-yl-phenyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

7-Cyclopropylmethyl-5-(4-thiophen-3-yl-phenyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

7-Benzyl-5-(4'-fluoro-biphenyl-3-yl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

5-Biphenyl-4-yl-7-(4-fluoro-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

7-Benzyl-5-biphenyl-3-yl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

Methyl 4-(7-benzyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzoate;

4-(7-Benzyl-5-methyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;

5-(4-Bromo-phenyl)-7-cyclopropylmethyl-5-methyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

5-(3-Bromo-phenyl)-7-cyclopropylmethyl-5-methyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

5-(4-Bromo-phenyl)-7-(4-fluoro-benzyl)-5-methyl-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

4-[7-(4-Fluoro-benzyl)-5-methyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

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4-[(R)-7-[(S)-1-(4-Fluoro-phenyl)-ethyl]-5-methyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

4-[(S)-7-[(S)-1-(4-Fluoro-phenyl)-ethyl]-5-methyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl]-benzonitrile;

5-Benzyl-5-(4-bromo-phenyl)-7-(4-fluoro-benzyl)-7,8-dihydro-imidazo[1,5-a]pyrazin-6-one;

4-(5,7-Dibenzyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;

4-(5-Benzyl-7-cyclopropylmethyl-6-oxo-5,6,7,8-tetrahydro-imidazo[1,5-a]pyrazin-5-yl)-benzonitrile;

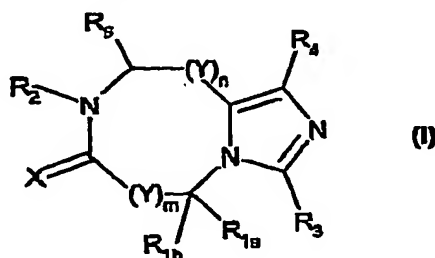
5-(4-Bromophenyl)-7-(4-methoxy-benzyl)-5,6,7,8-tetrahydro-imidazo[1,5-a]-pyrazine;

4-(8-Benzyl-7-oxo-6,7,8,9-tetrahydro-5H-imidazo[1,5-a][1,4]diazepin-5-yl)-benzonitrile; and

4-(8-Cyclopropylmethyl-7-oxo-6,7,8,9-tetrahydro-5H-imidazo[1,5-a][1,4]diazepin-5-yl)-benzonitrile;

or a pharmaceutically acceptable salt thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

12. A method for the inhibition of aldosterone synthase activity in mammals which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound of formula I



wherein

X is oxygen or H₂;

Y is -CRR'- in which

R and R' are independently hydrogen, optionally substituted alkyl, aralkyl or heteroaralkyl;

R_{1a} is hydrogen, optionally substituted alkyl, cycloalkyl, alkenyl, alkynyl, aryl, aralkyl, heterocyclyl or heteroaralkyl provided that R_{1a} is not 9H-carbazol-2-yl when R₂ is

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methyl, m is zero or an integer of 1, n is zero, X is H₂, and R_{1b}, R₃, R₄ and R₅ are hydrogen;

R_{1b} is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl, aryl or heteroaryl;

R₂ is R₆-(CHR₇)_p- in which

R₆ is optionally substituted alkyl, cycloalkyl, aryl or heterocyclyl;

R₇ is hydrogen, optionally substituted alkyl, aryl, heteroaryl or aralkyl;

p is zero or an integer from 1 to 4;

R₃ and R₄ are independently hydrogen, halogen, optionally substituted alkyl, aryl or heteroaryl; or

R₄-C may be replaced by nitrogen;

R₅ is hydrogen, optionally substituted alkyl, aryl, heteroaryl, aralkyl or heteroaralkyl;

m and n are independently zero or an integer of 1 provided that the sum of m and n is not 2;

or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof.

13. A method for the prevention and/or treatment of conditions associated with aldosterone synthase activity in mammals which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound as defined in claim 12.

14. The method according to claim 13, which method comprises administering said compound in combination with a therapeutically effective amount of anti-obesity agent, anti-hypertensive agent, inotropic agent or hypolipidemic agent.

15. A method for the treatment of hypokalemia, hypertension, congestive heart failure, atherosclerosis, coronary heart diseases and post myocardial infarction, which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound as defined in claim 12.

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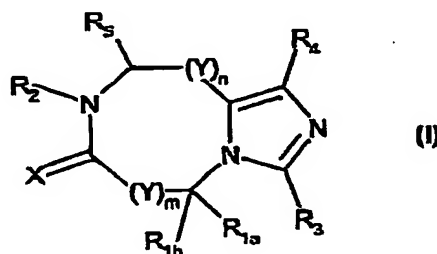
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16. A method for the treatment of restenosis, increased formation of collagen, fibrosis, and remodeling following hypertension and endothelial dysfunction, which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound as defined in claim 12.

17. A method for the treatment of renal failure and nephropathy, which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound as defined in claim 12.

18. A method for the treatment of syndrome X and obesity, which method comprises administering to a mammal in need thereof a therapeutically effective amount of a compound as defined in claim 12.

19. Use of a compound of formula I



wherein

X is oxygen or H₂;

Y is -CRR'- in which

R and R' are independently hydrogen, optionally substituted alkyl, aralkyl or heteroaralkyl;

R_{1a} is hydrogen, optionally substituted alkyl, cycloalkyl, alkenyl, alkynyl, aryl, aralkyl, heterocyclyl or heteroaralkyl provided that R_{1a} is not 9H-carbazol-2-yl when R₂ is methyl, m is zero or an integer of 1, n is zero, X is H₂, and R_{1b}, R₃, R₄ and R₅ are hydrogen;

R_{1b} is hydrogen, optionally substituted alkyl, aralkyl, heteroaralkyl, aryl or heteroaryl;

R₂ is R₅-(CHR₇)_p- in which

R₆ is optionally substituted alkyl, cycloalkyl, aryl or heterocyclyl;

R₇ is hydrogen, optionally substituted alkyl, aryl, heteroaryl or aralkyl;

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p is zero or an integer from 1 to 4;

R₃ and R₄ are independently hydrogen, halogen, optionally substituted alkyl, aryl or heteroaryl; or

R₄-C may be replaced by nitrogen;

R₅ is hydrogen, optionally substituted alkyl, aryl, heteroaryl, aralkyl or heteroaralkyl;

m and n are independently zero or an integer of 1 provided that the sum of m and n is not 2; or a pharmaceutically acceptable salt thereof; or a diastereomer thereof; or a mixture of diastereomers thereof; or an optical isomer thereof; or a mixture of optical isomers thereof,

for the preparation of a pharmaceutical composition for the treatment of conditions associated with aldosterone synthase activity.

20. A compound of formula I as defined in claim 19, for use as a medicament, with proviso that when m=0 and n=0 or m=1 and n=0, R₅, R₄, R₃, R and R' are hydrogen, R₂ is CH₃, X is H₂, R_{1a} is hydrogen, then R_{1b} is not carbazoyl; or when m=0 and n=0, R₅, R₄, R₃, R and R' are hydrogen, R₂ is CH₃, X is H₂, R_{1a} is hydrogen, then R_{1b} is not fluorenyl; or when n=0 and m=1, R_{1b}, R_{1a}, R, R', R₃ and R₄ are hydrogen, R₂ is CH₃, X is H₂, then R₅ is not carbazoyl.

21. A pharmaceutical composition comprising a therapeutically effective amount of a compound of formula I as defined in claim 19, in combination with one or more pharmaceutically acceptable carriers, with proviso that when m=0 and n=0 or m=1 and n=0, R₅, R₄, R₃, R and R' are hydrogen, R₂ is CH₃, X is H₂, R_{1a} is hydrogen, then R_{1b} is not carbazoyl; or when m=0 and n=0, R₅, R₄, R₃, R and R' are hydrogen, R₂ is CH₃, X is H₂, R_{1a} is hydrogen, then R_{1b} is not fluorenyl; or when n=0 and m=1, R_{1b}, R_{1a}, R, R', R₃ and R₄ are hydrogen, R₂ is CH₃, X is H₂, then R₅ is not carbazoyl.

22. A pharmaceutical composition comprising a therapeutically effective amount of a compound of formula I as defined in claim 19 in combination with a therapeutically effective amount of anti-obesity agent, anti-hypertensive agent, inotropic agent or hypolipidemic agent.

23. A pharmaceutical composition according to claim 21 or 22 for the treatment of hypokalemia, hypertension, congestive heart failure, atherosclerosis, coronary heart diseases, post myocardial infarction, restenosis, increased formation of collagen, fibrosis,

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remodeling following hypertension and endothelial dysfunction, renal failure, nephropathy, syndrome X and obesity.

24. A pharmaceutical composition according to claim 21 or 22, for use as medicament.

25. Use of a pharmaceutical composition according to claim 22 for the preparation of a medicament for the treatment of conditions associated with aldosterone synthase activity.

26. Use of a pharmaceutical composition comprising a therapeutically effective amount of a compound of formula I as defined in claim 19, in combination with one or more pharmaceutically acceptable carriers, for the preparation of a medicament for the treatment of conditions associated with aldosterone synthase activity.

27. Use according to any one of claims 19 or 25 to 26 wherein the conditions associated with aldosterone synthase activity is selected from hypokalemia, hypertension, congestive heart failure, atherosclerosis, coronary heart diseases, post myocardial infarction, restenosis, increased formation of collagen, fibrosis, remodeling following hypertension and endothelial dysfunction, renal failure, nephropathy, syndrome X and obesity.

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